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Subslug: [Article by S. Leskov: ``There Is No Doubt About It, the
Thermonuclear Reaction Will Work'']

FULL TEXT OF ARTICLE:

1. [Article by S. Leskov: ``There Is No Doubt About It, the
Thermonuclear Reaction Will Work'']

2. [Text] IZVESTIYA reported recently on the signing in Moscow of cooperation agreement to work on the ITER technical project for an international thermonuclear experimental reactor. It will be the largest international technical project in the history of mankind, in which the United States, Japan, the European Community, and the USSR will participate.

3. Although the agreement has been more than a year in the making, its rapid signing was helped by a sensation in Oxford on Saturday: Using the JET installation it was possible to achieve a thermonuclear reaction rated at about two megawatts. From the standpoint of the theory, the result was a long time coming after many years of failure that lessened optimism about thermonuclear reactions. They had even started to say that ``Tokamak'' was the greatest scientific adventure since ``flying saucers'' and biological auras. And now-a grand success that has overcome the doubts of the skeptics.

4. Naturally there was enormous interest in the presence in the European delegation of the director of the JET project, Professor Paul-Henri Rebyut. According to the scientist it is still premature to ask about lighting lamps with the ``Tokamak.'' The sensational experiment on 9 November required more energy input than was generated. But we should not be too severe on the first practical step toward mastering a fundamentally new energy source—a source that is the cleanest and safest of all known sources. Moreover, sad though it may be, we had nothing to do with this step. Professor Paul-Henri Rebyut expressed regret that the USSR had not been part of the JET project, in which scientists from 14 countries had taken

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part.

5. To make up for this we are cooperating in another international project--the ITER project, which has brought together all the best forces, without exception. Even the richest countries understand that alone they can neither build nor even plan an installation like a thermonuclear reactor. The ITER project provides food for thought not only for the "technical people" but also the politicians. While in the USSR the desire to pull apart everything on a national basis is growing, the developed countries are setting an example of the transnational economy, which increases mutual potential many times over. Even Japan, which has announced that during the next decade it will independently "settle" the thermonuclear reaction, has deemed it best to join the world community.

6. ITER is an example for us in another way, also, as it relates to spending for science in the developed countries. All those participating in the project, except for the USSR, have been insistently proposing that the work areas for planning the various assemblies of the reactor be located on their own territories. And indeed, it is difficult to assess the expected costs. (Already today, at the first stage of the "Tokamak" study 1 billion rubles will be "devoured" in the first year). As to when there will be any profit, or whether indeed there will be any at all, is another question. But experience shows that the economic side effect from the development of modern technologies will exceed costs, no matter what fate awaits the scientific idea itself.

7. Following a debate it was decided to locate the project bases for ITER in the FRG, the United States, and Japan, where experts from all participating countries will work. By mutual agreement, spending by the USSR is rather more modest, but we will ensure work on the Moscow headquarters for ITER, regardless that we are serving the "brains" on other territories. In addition, some of our plants may be earmarked to manufacture particular assemblies for the thermonuclear reactor.

8. So how many years will the research take? And when will energy from the "Tokamaks" be fed to the light bulbs? According to the head of the USSR delegation B. Nikipelov, first deputy minister for atomic power and industry, it will take five or six years to design the reactor. It is only halfway through this period that the place where it will be assembled will be decided. The same time will also be spent on building an experimental reactor. The next stage is demonstration reactors. In the opinion of Academician Ye. Velikhov, the first industrial thermonuclear power stations may not appear for another 50 years. Not that soon, but according to the predictions it is precisely then that mankind will begin to experience difficulties

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with the traditional energy sources.

9. How safe are thermonuclear reactors? The experts say that they are in principle harmless, but those same assurances were once given about nuclear reactors, which are incomparably simpler. Let us hope that the experience gained in the operation of the nuclear power stations will teach us to be more responsible about this very important problem, and that we will not fall under the spell of formulas, which can always be cited.

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